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Linking land titles/registry  
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# LINKING LAND TITLES/REGISTRY SYSTEMS IN CANADA TO LAND-RELATED ENVIRONMENTAL INFORMATION

by

**J. Anthony Cassils**

April 1995

Unedited Working Paper for Discussion

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## Introduction

At the request of the Task Force on Reporting on Sustainability of the NRTEE, the paper explores the rationale and benefits of linking Canada's land titles/registry systems with land-related environmental information. It asks and begins to answer some basic questions. What is the need for this sort of linkage? Is it a good idea? Who and what organizations are either involved in related work or natural allies? Where is a strategic place to start?

The integration of the environment and the economy, and management for sustainable development, will require the integration of information. While there are many environmental data bases in Canada, each containing a great number of facts, there is little ability to correlate data among the data bases, to evaluate the data, and to do analyses. Fortunately, the rapidly expanding capacities of computers and telecommunications make possible the linking together of some formerly unconnected data bases at reasonable cost.

Many in the business community, especially banks and insurers, would like to have a better system to deal with land-related environmental data. They stress that this would save time, and reduce the risk and the costs of doing business. Some of these companies would like to contribute information if a suitable organization existed to receive it. For example, banks require soil testing and drilling programs to monitor contamination. This data could be useful to many people if it was available in a comprehensive data base.

To prepare the paper, the Consultant gathered information from many sources including: the Insurance Bureau of Canada; the State of Environment Reporting Directorate, the Environmental Knowledge Network, the National Pollution Release Inventory, Environment Canada; Statistics Canada; the Canadian Bankers Association, and some bankers; the Secretariat of the Canadian Council of Ministers of the Environment (CCME); the Directors of Land Titles for Ottawa-Carleton and Toronto, Government of Ontario; Land Information Alberta; Director of Land Titles, Ministry of the Attorney General, Government of British Columbia; Sandra O'Connor, Consultant Victoria, B.C. who is developing a Canadian Geographical Information Sourcebook, which should be published in early spring of 1995; the Ministry of the Environment, Government of New Brunswick; the Canada Mortgage and Housing Corporation; Management Board Secretariat, Ministry of Environment and Energy of the Government of Ontario; the Executive Director of the Ontario Round Table on the Environment and the Economy and the Environmental Coordinator of the Waterfront Regeneration Trust for Toronto.

In addition, the Consultant reviewed some written material pertaining to some of the above organizations, including the two books on "Databases for Environmental Analysis" produced by Statistics Canada and the Canadian Council of Ministers of the Environment.



## **What is the Need?**

One of the keys to sustainable development is the integration of the environment and the economy. A web of information connecting the environment and the economy will act as a central nervous system guiding decision-makers in more sustainable directions.

There is a great deal of environmental information in Canada, and much of it is land-related. The information is dispersed in hundreds of data bases across the country. Many of these data bases are not designed to relate easily to one another, and face boundaries relating to cost, function and jurisdiction. Attempts to remedy this situation can encounter some barriers, which are more often institutional than technological. For example, in this time of budgetary constraints if management is asked to change a program so that data collected can be related to data bases in other jurisdictions, the reply may well be that they would be pleased to do so if supplied with the funds and the staff.

One person interviewed suggested that while Canada has an abundance of environmental information, the data are not sufficiently comprehensive and do not receive enough analysis. In 1991, the Consultant interviewed a distinguished professor of forestry and asked him to identify the greatest need of management for sustainability in Canada. He responded, "reliable information", adding that in Canada, there are insufficient data bases to show the present effect of management on the various resources. For example, often, for forestry, Canadians must extrapolate from non-Canadian information to determine the possible effects of certain actions in Canada. This includes information regarding the effect of the harvesting of forests on erosion, water quality, wildlife populations, aesthetics and fisheries. Without a solid data base, the management of natural resources is left to the mercy of political, environmental, and industrial speculation.

Insufficient, scattered, or insufficiently analysed information may entail a high cost, and increase risks for both the public and the private sectors.

## **A Possible Solution - Linking Land Titles/Registry Systems with Geographic Databases Containing Environmental Information**

One of the most fundamental concepts underlying the Canadian economy is the private ownership of land. Traditionally, an owner of land was said to own all that was above and below the property. This rather narrow and static view of property and of the rights of the owner have become more dynamic with the advance of environmental

knowledge and ecological awareness. Pollution from one piece of land can travel to another by air and water. A few decades ago, some scientists noted that groundwater flowed.

Land titles/registry systems meet a specific need crucial for the economic infrastructure, providing evidence of ownership of real property and a means for its transference from one person to another. They fall under provincial jurisdiction.

As a general rule, only those documents pertaining to ownership are registered on land titles/registry systems, although there are a few exceptions such as permitting a notification on the register if the property is located on a floodplain. Most land-related environmental information pertains to use rather than to ownership, and is excluded from registration. Much of the information on land titles/land registry systems is guaranteed for accuracy by the provinces.

What is needed, then, is a bridge between the many land-related databases containing environmental information and the fundamental land ownership system of land titles/registries.

With modern technology, there is no need to transfer information from one data base to another. What is needed is a system that permits various data bases covering similar subjects to relate. For example, at a land titles/registry office, the property identification number (PID) can be entered to do a title search. It would be useful if a menu were added, listing the data bases that contain information pertaining to the specific site. Direct links to the other databases should be established; the PID could serve as the common key used to access the site specific information.

Linking the land titles/registry systems with land-related environmental data bases does not mean modifying land titles/registry systems to permit the registration of environmental information pertaining to land ownership. These systems would be overburdened if they were saddled with the responsibility to guarantee the accuracy of environmental information.

Linking data bases containing land-related information would have a substantial impact on the millions of land owners in Canada. Site specific environmental information relates to the risk of ownership and to use. An increasing number of owners will be interested in knowing more about the environmental condition of land which they own or are thinking of purchasing. Air quality, noise levels, the condition of the soil, the level of contamination, underground water quality, past uses, epidemiological surveys of the area will in all likelihood have a growing role in influencing where people choose to live. This information will have an impact on market values, which will help to shape the future of many communities.



During the interviews, most people were intrigued with the suggestion of linking land titles/registry systems with land-based environmental information. Many expressed an interest in becoming involved with such an initiative. Linking more comprehensive land-related environmental information to land titles/registry systems could yield the following benefits:

- Build the environmental information base from the "grass roots" up, to make very clear the connections between specific information and more general observations found in reports such as those that will document Canada's progress towards sustainability.
- Encourage the prevention of environmental damage.
- Meet the needs of the financial services industry for more site-specific environmental information on property reducing risks for their clients and for themselves.
- Create a better climate for business: greater awareness of environmental conditions and standards may eliminate delays in making business decisions and encourage investment, leading to more job creation in Canada.
- Build broad and enduring public support for a continuing shift to more sound environmental practices in the private and the public sectors.
- Improve the quality of public policy and build support for its enforcement.
- Encourage full-cost pricing and add impetus to the demand for more environmentally sustainable practices.

### **Who Else Could be Involved?**

Statistics Canada and the Canadian Council of Ministers of the Environment published two books in 1994 on "Data Bases for Environmental Analysis", one covering data bases of the Government of Canada, and another focusing on provincial and territorial data bases. The two books refer to hundreds of databases formed for many different purposes. On the whole these databases do not link with one another. Those responsible for many of these data bases are potential allies. The following provide a few examples and have been drawn from the interviews undertaken by the Consultant.



## Intergovernmental

- The Canadian Council of Ministers of the Environment has been bringing together representatives of the senior governments in Canada with people from the business community to address a number of land-related issues including liability for contaminated sites, quality criteria and a classification system for contaminated sites, and standards to apply to underground storage tanks. The CCME has been emphasizing the harmonization of standards among jurisdictions.

## Government of Canada

- Statistics Canada is a natural participant in any review of methods of organizing information in Canada. They and the Canadian Council of Ministers of the Environment are responsible for producing the above-mentioned books setting out data bases for environmental analysis.
- The Environmental Knowledge Network (EKN) of Environment Canada works with others to develop tools that could be used in the context of the Network. They are building an open system on the Internet and it is functioning now. EKN and the CCME held a workshop in January 1995, bringing together non-technical people who wished to enhance the use of government networks in a collegial forum.
- The National Pollution Release Inventory of Environment Canada started operations in mid 1993. Its purpose is to provide comprehensive, publicly accessible data on releases of specified substances into the air, water, and land. It will include information on releases from all Canadian sectors - industrial, government, commercial and others. The NPRI uses longitude and latitude to locate releases of pollutants. They operate by means of a self-reporting system. For example, they have had good cooperation from the Canadian Chemical Producers Association which gathered information on releases by its members prior to the formation of the NPRI. The CCPA looked at the diskette prepared by the NPRI, and added any additional information they required, so that they can prepare reports for their own purposes from the same information they gather for the NPRI.
- Environmental Effects Monitoring (EEM), Environment Canada - The objective of the EEM program is to assess whether national regulations are adequately protecting the environment, including wildlife, habitats and resources.



- The Canadian Geographic Information System provides baseline digital mapped data for environmental and resource management planning decisions and for state of the environment reporting.

A Consultant based in Victoria, B.C., Sandra O'Connor has been assembling a Canadian Geographical Information Systems Sourcebook listing all federal and provincial organizations with geo-referenced data bases, and approximately 300 companies providing G.I.S. products and/or services. The book is expected to be released by the end of March 1995.

- The State of the Environment Directorate of Environment Canada has an objective to provide timely, accurate and accessible information to enable Canadians to make environmentally-sensitive decisions. An ecosystem framework is used to guide the development of the two main program areas: environmental reporting and indicators.

All products of SOE Reporting have a common approach, which is to address four key questions: What is happening in the environment? (data on conditions and trends); Why is it happening? (linkages to human activities and ecological processes); Why is it significant? (health, economic, ecological, or other implications); What are we doing about it? (how Canadians are responding?).

State of the Environment Reporting would benefit from more comprehensive baseline data that would be linked by a clearly identifiable chain of logic to their reports and indicators.

### Some Provinces

- Many directors of land titles/registry systems in the provinces and other provincial organizations with responsibilities for land-related information would support a linkage program. Most of their systems are in a period of rapid transition. Some examples follow:

**Alberta:** In addition to the land titles/registry system, a related organization, Land Information Alberta, was started in 1991 with a mandate to operate the land-related information network (LRIS), and to deliver data products and services to its customers. The LRIS Network is a computer network being developed by the Alberta Government to make land-related information conveniently available to all Albertans. The LRIS does not include land-related environmental information. The Government of Alberta is considering the privatization of Land Information Alberta.



- In British Columbia, the land titles register is automated and on computer. Instruments, meaning all legal documents pertaining to land, are stored on paper for a short while, and then are put on microfilm. They have been developing an image processing system for their instruments that will replace the microfilm. The instruments will be able to be retrieved in the same way as the title, providing clients with a full service land titles system on their desktops.

In addition to its land titles system, British Columbia is proposing Bill 26 (expected to become law in 1995), which, by Canadian legislative standards, is a detailed response to issues related to liability for contaminated sites. Bill 26 retains several liability principles found in Canadian legislation on contaminated sites (e.g., absolute, joint and several, and retroactive liability). The Bill, however, introduced many features unique to Canada. These new features generally reflect a policy of enhancing fairness and certainty. Bill 26, for instance, seeks to clarify a "contaminated site", provides exemptions for innocent purchasers and secured creditors (among others), protects "minor contributors", allows responsible persons to limit or schedule liability in "voluntary remediation agreements", and enables regulators to grant approval or remediation. Regulations now being developed could contract, expand and clarify the liability principles of the bill.<sup>1</sup>

The Ministry of the Environment has started to develop a sister data base on contaminated sites. A notion raised during the interview by the Consultant with the Director of Land Titles suggests that if a client wants to tie into the provincial information network to make a business decision that relates to land, for example, the first step would be to go to the land titles system to look at the title. Then a question would appear on the screen asking if additional information is wanted pertaining to this piece of land with a menu of other data bases following, cross referenced to the land titles system with the property identification number. The responsibility for the accuracy of the information on each data base remains with the organization responsible for its creation and maintenance.

- New Brunswick has established a Crown Corporation, the New Brunswick Geographic Information Corporation, which is responsible for the registration of property. They have digitized their system using property identification numbers as entry points. They have attached some

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<sup>1</sup>Braul, Waldemar. "Liability Features of Bill 26". *Journal of Environmental Law and Practice*. 4 J.E.L.P., at p. 139.



environmental information to the base, such as designated watersheds and government restrictions. However, as with other land titles/registry systems, there is not system for cross referencing most land-based environmental information to the land titles/registry system.

- Ontario is served by both a land titles and a land registry system. Most of the settled regions of Ontario started on the land registry system, but the policy is to shift over entirely to the land titles system. The land titles system guarantees title, the registry system does not. Both the land titles and the land registry systems are in the process of being automated; this should be completed by the year 2000.

Bulletin number 91003 dated July 25, 1991, instructed all land registrars in Ontario not to register environmental warnings against real property:

"Environmental warnings, even if drafted in the form of a restriction, are not title-related and are not acceptable for registration on title as separate documents. An environmental warning or restriction would be a notification of or an obligation to notify a potential purchaser of some environmental concerns such as: noise levels, water quality, sewage disposal, impending construction, maliferous odours, pollutants (chemicals, radiation, radon gas, floodplains, wetlands, etc.). There are four exceptions to this rule under the Planning Act and the Environmental Protection Act.

The Ministry of Environment and Energy has prepared an Ontario Waste Disposal Site Inventory, which identifies the location, classification, waste type, and closure date for active and closed waste disposal sites in Ontario.

The Ministry of Natural Resources does Ontario based mapping. At a very large scale, it might be able to coordinate longitude and latitude and concession lots, but it would be difficult to do for lots in a subdivision.

The Ministry of Revenue is responsible for the property assessment roles, which do not correlate on a one-to-one basis with the land titles/registry system.

Management Board Secretariat is developing a collection of metadata describing information holdings created and maintained by the provincial Ministries and agencies.

### Companies Including Crown Corporations

- Canadian banks and property and casualty insurers have expressed a strong interest in having better information on the environmental condition of land. This interest was made clear when the Consultant and some staff from the State of the Environment Directorate of Environment Canada met with representatives from both these industries in the spring of 1994.
- The Canada Mortgage and Housing Corporation considers that the assessment of environmental risk has become an essential part of the mortgage underwriting process to ensure that lending and mortgage insurance decisions are based on complete information. CMHC requires an independent professional environmental site assessment for every mortgage loan insurance application or default where the loan involves more than six housing units.

### The Government of the United States

- Executive Order 12906 published in the April 13, 1994 edition of the Federal Register introduced: "Coordinating Geographic Data Acquisition and Access: The National Spatial Data Infrastructure". In the introduction the order states:  
  
 "Geographic information is critical to promote economic development, improve our stewardship of natural resources, and protect the environment. Modern technology now permits improved acquisition, distribution, and utilization of geographic or geospatial data and mapping. The National Performance Review has recommended that the executive branch develop, in cooperation with State, local, and tribal governments, and the private sector, a coordinated National Spatial Data infrastructure to support public and private sector applications of geospatial data in such areas as transportation, community development, agriculture, emergency response, environmental management, and information technology."



## Where is the Strategic Place to Start?

Since there are hundreds of data bases it is important to encourage integration by taking manageable steps which are likely to be well received, thereby building momentum and morale.

The following criteria will be helpful in making decisions:

- Is there a strong demand for connecting land-related environmental information with the land titles/registry systems? What are the priorities?
- Are potential customers willing to pay for such a service, and would the service operate at a profit or at least recover costs?
- Could the information be provided by a private company?
- Will more accessible and interconnected data lead to better public policy and avoid many costs in the future?
- What are the focal points which may draw the support of the senior governments in Canada, and bridge jurisdictions?
- Can the information be released or is it confidential? For example, some data bases depend on self reporting by companies, which could be less willing to participate if the information they provided became accessible to a broad public.

The integration of data bases under a broad category like "environment" or "land and environment" tends to follow a number of logical steps.

First, a list of data bases is prepared such as the Statistics Canada/CCME volumes. The second step is to consult with potential users to identify areas of greatest needs. Do existing data bases provide people with the appropriate environmental information? If not, then prioritize; where are the needs the greatest? Next, consider if and how sub-data bases could be linked to primary data bases, such as the land titles/registry systems. Then begin to connect some of these data bases electronically. Standards will be required, and the identification of common keys such as property identification numbers of the land titles/land registry systems. Structures to oversee operations will be required.

Canada is on the verge of taking the second step, and needs leadership to coalesce on this subject and build momentum.

## Some Specific Suggestions from the Field

In a recent article<sup>2</sup> regarding policy issues surrounding contaminated site remediation in Canada, two issues are raised that may be of interest: the article suggests that a **national register of contaminated sites** needs to be developed, presumably by the provinces, with co-ordination by the federal government, to allow public discussion of the priorities for site remediation; and, while most provinces and the federal government have begun processes of cataloguing and classifying sites, this work has been criticized for a lack of openness and predictability in the designation procedures. Classification and designation decisions are typically made by officials through processes closed to external input. This is perhaps not surprising, given that public designation as a contaminated site will have an immediate effect on the value of the land. The **principle of transparency** and connecting the responsibility of land ownership with the consequences of contamination are important components of reporting on sustainability.

The report prepared by the CCME, setting out guidelines and standards for underground storage tanks, is first-rate; but there is no mechanism in place to ensure that all the guidelines are being implemented and considered as "best practices". At present, there is an absence of a coordinating body for implementation. It is not necessary to create a new organization, but to ensure that the responsibility is assigned.

Bankers and property and casualty insurers are eager for information on the environmental condition of property wherever it is. This could include information regarding naturally occurring levels of pollution at various sites. Bankers and insurers touch the lives of most Canadians. In the last few years, most of them have introduced long forms on environmental risks to be filled out by some of their clients. Recently, the Consultant was informed by someone in agriculture, that the request by bankers that farmers fill out forms regarding environmental risks, did more to improve the environmental soundness of agriculture than most laws and regulations. A well-informed financial services industry is a natural ally of Government for the purpose of moving towards sustainability.

Doug Bisset of the Canadian Imperial Bank of Commerce, Environmental Affairs, Risk Management Division, in a letter to the Consultant dated November 25, 1994, made the following proposal for: the creation of a data base of all environmental information associated with land as an entity separate from the provincial land

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<sup>2</sup>Ford, Glenna; Doug Macdonald; and, Mark Winfield. "Who Pays for Past Sins?". *"Alternatives"*. Vol. 20, No. 4, 1994, at p. 33.



titles/land registry systems, but cross referenced to them. The data base would be organized as follows:

1. "A registry would be established for all lands that are covered by a Federal or Provincial environmental permit. This would include Fisheries, Lands and Forests, Mining and all manufacturing and servicing, as examples. These lands would be defined by their land registry cross reference and by the geographic co-ordinates (NTIS)."
  2. "The registry data base would include, with annual updates:
    - a. Each and every permit, licence or authority to carry on environmentally sensitive operations with the terms and conditions for these.
    - b. Reports to all levels of government as required by law and by permit or licence.
    - c. Waste management manifest data to define waste generation and place of disposal.
    - d. Land contamination reports and remediation procedures on-going."
  3. "The operation of the registry and data base would be by the owners of the lands, with penalties for non reporting or for administrative errors older than thirty days.
    - a. Each owner would be given access to write to the section of the data base that pertains to his lands. It is the owner's responsibility to ensure that the data is appropriate, correct and entered on time.
    - b. The data base management would be by a third party management company, which would administer the data storage, maintain security and prepare reports for the companies and the government."
- "Note" "The costs of the data management would be to the companies account. The government involvement would be to the extent of ensuring that data is entered, the information is appropriate to the regulatory requirements, enforcement for non compliance with the required filings. The government would then be able to prepare reports quickly and easily, in a timely fashion, from one source of information."

"The government would retain the right to formulate the data requirements while the data management company would optimize the data input screens and the ability to sort and report."

"The development of such a program is a significant project. The outcome would be a large reduction in staff at the federal and provincial levels with growth in the data management business. The advantages include: the reduction in government costs, little or no change in company costs, greater accuracy in data transfer, ability to transfer reports rapidly and efficiently to government on non compliance and to the public on environmental matters."

Another commentator suggested that:

1. Governments should only gather information to the extent necessary to perform the functions of government. Governments should not spend money to add additional value, if there is someone in the private sector capable of doing the task.
2. If the intent is to build an environmental data base pertaining to land, then the identifiers created by the land titles/registry systems should be at the foundation. Government would set standards for the technologies and for the keys to connect one data base with another.

## Conclusions

This paper is a review of the need and opportunities to provide comprehensive, land-related environmental information by linking geographic databases with land titles/registry systems. The needs and potential benefits are numerous.

From a preliminary review, it appears that land-related environmental information in Canada is in a fragmented and partial state. A more comprehensive environmental information base will be required to assess Canadian progress towards greater sustainability, but this will not be achieved without strong leadership especially in a time of budgetary constraint.

The next step calls for leaders to develop a more comprehensive and better integrated system of land-based information designed to facilitate reporting on progress towards sustainability. This could involve convening a group of interested people and designing a process that could lead to policies not unlike those set out in the previously



mentioned executive order 12906 of the Government of the United States. Another approach would be to focus on a more specific proposal such as that suggested by Doug Bisset of the CIBC. Either of these approaches could be done at quite a modest cost.

As many data bases including land titles/registry systems have been or are in the process of being automated, it would be timely to consider opportunities for harmonization, and to ascertain if the various jurisdictions and sectors can learn from one another.











*Hilary*  
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